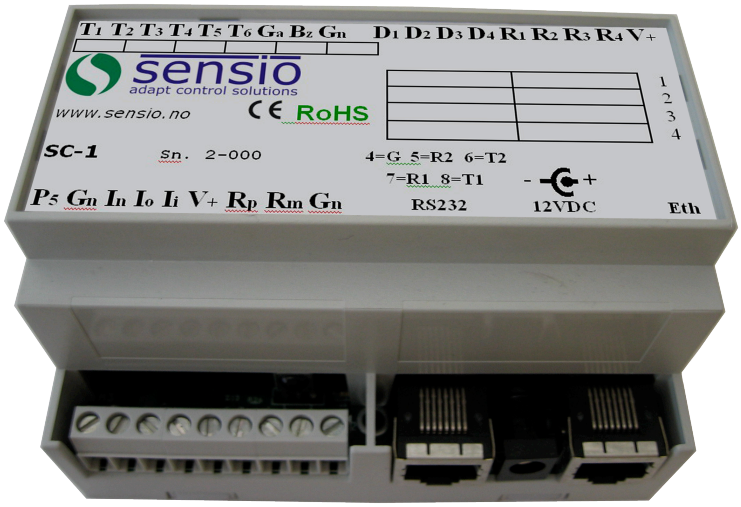
SC-1 User Manual



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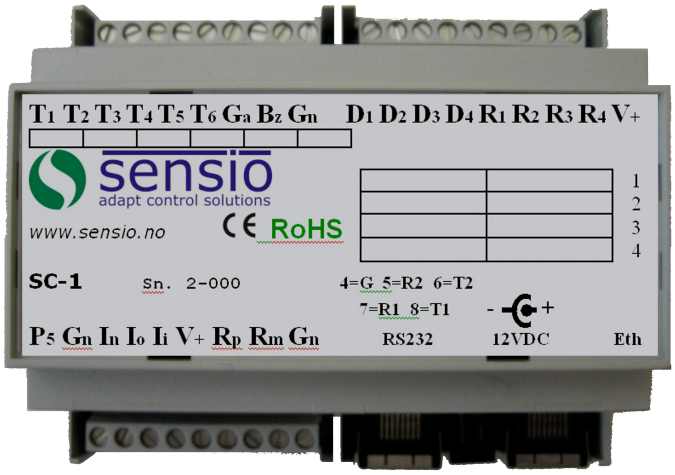
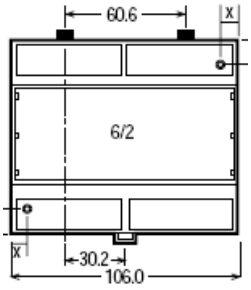
1 Introduction

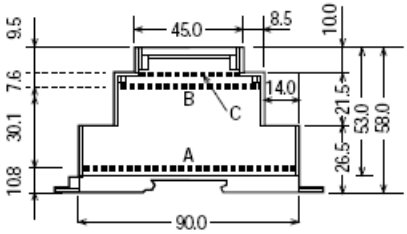
This document describes the usage and specifications for the Sensio SC-1 Controller. The controller is built in a DN rail mountable plastic box.



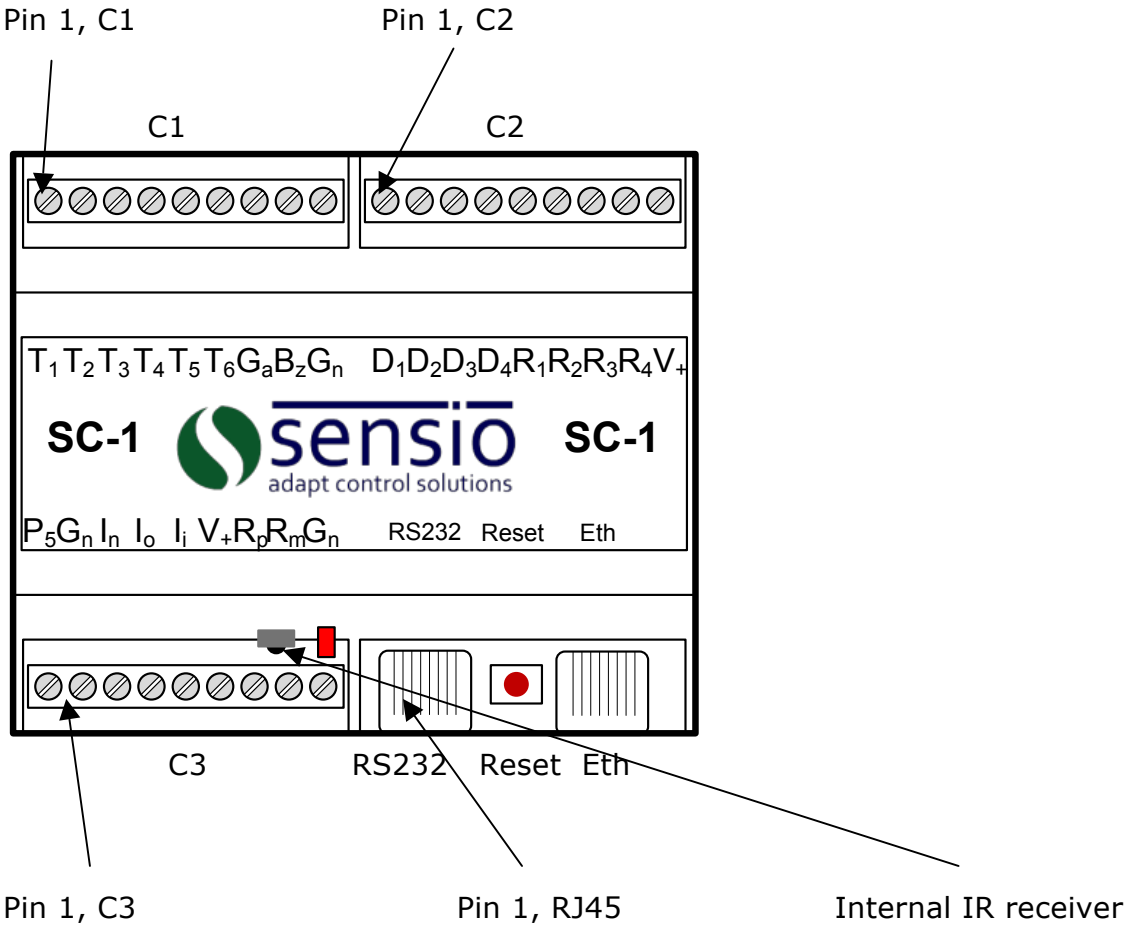
2 Physical view

The physical measurements are shown below.





3 Connectors



The connectors C1, C2 and C3 are screw connectors with 9 terminals each. RS232 connector is RJ45 and Eth connector is RJ45. Between RS232 and Eth connector is the reset switch.

Connector C1

Pin	Description
1	Temperature 1
2	Temperature 2
3	Temperature 3
4	Temperature 4
5	Temperature 5
6	Temperature 6
7	Analog ground (common NTC)
8	Buzzer out (active pull to GND)
9	GND

Connector C2

Pin	Description
1	Digital input 1 (internal pull up)
2	Digital input 2 (internal pull up)
3	Digital input 3 (internal pull up)
4	Digital input 4 (internal pull up)
5	Relay driver 1 (active pull to GND)
6	Relay driver 2 (active pull to GND)
7	Relay driver 3 (active pull to GND)
8	Relay driver 4 (active pull to GND)
9	+12V supply voltage

Connector C3

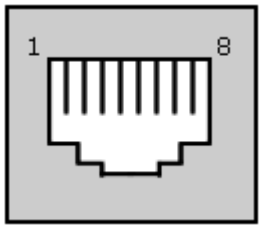
Pin	Description
1	+5V regulated out (25 mA)
2	GND
3	IR neg. input, IR channel 2 in SW
4	IR output
5	IR input standard, IR channel 1 in SW
6	+12V supply voltage
7	RS485 positive
8	RS485 negative
9	GND

Note: The internal IR receiver is channel 3 in SW.

3.1.1 Comm. connector

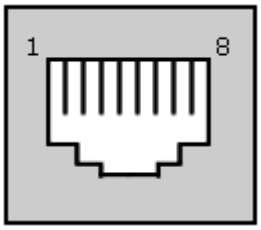
The communication connector has pins for RS232 port A and B.

Pin	Description
1	AUX input (do not connect)
2	AUX output (do not connect)
3	+12V supply voltage
4	GND
5	Port B RX
6	Port B TX
7	Port A RX
8	Port A TX



3.1.2 Ethernet connector

The Ethernet connector is standard 4 wire.

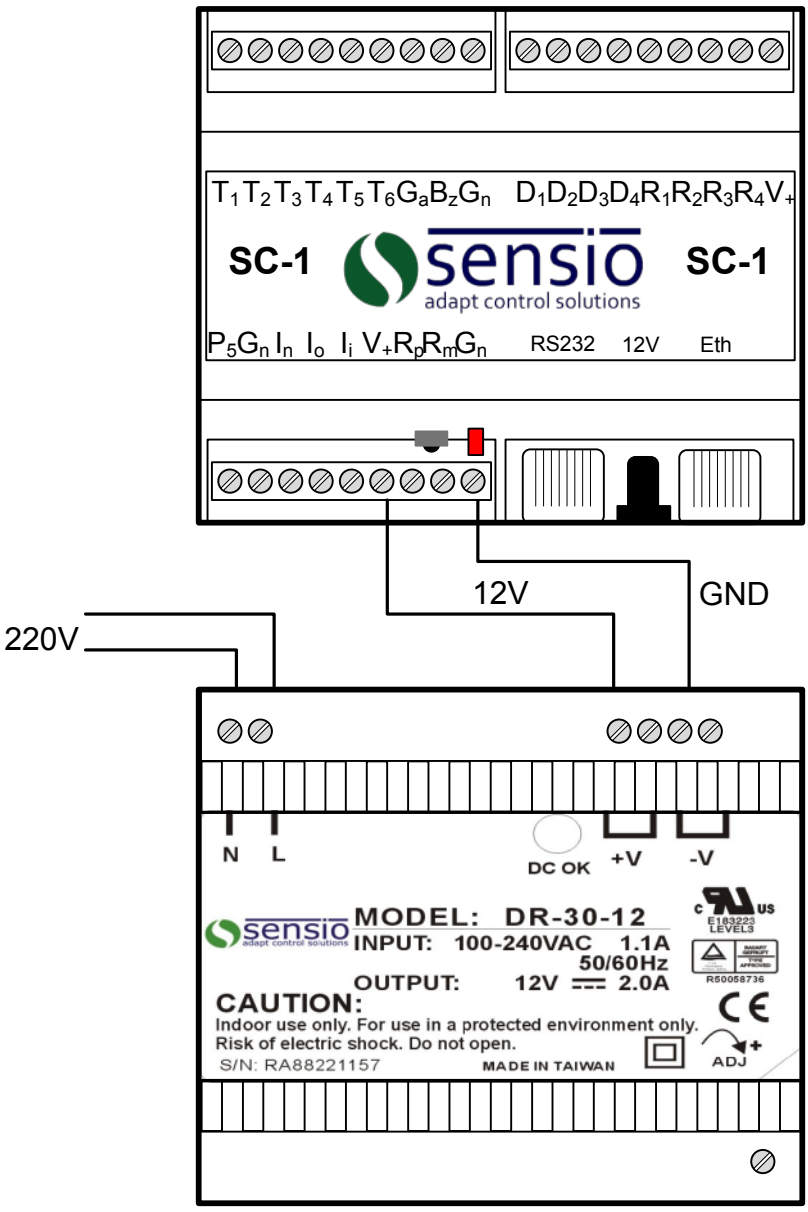


Pin	Description
1	TX+
2	TX-
3	RX+
4	GND
5	GND
6	RX-
7	+12V
8	+12V

Note! The power connections here are for supplying +12V through the Ethernet cable as an option. This is not PoE, i.e. not compatible with IEEE 802.3af (which is 48V). The connections are not compatible with certain Apple products, i.e. Apple AirPort, in which case only connections to pins 1,2,3,6 must be used.

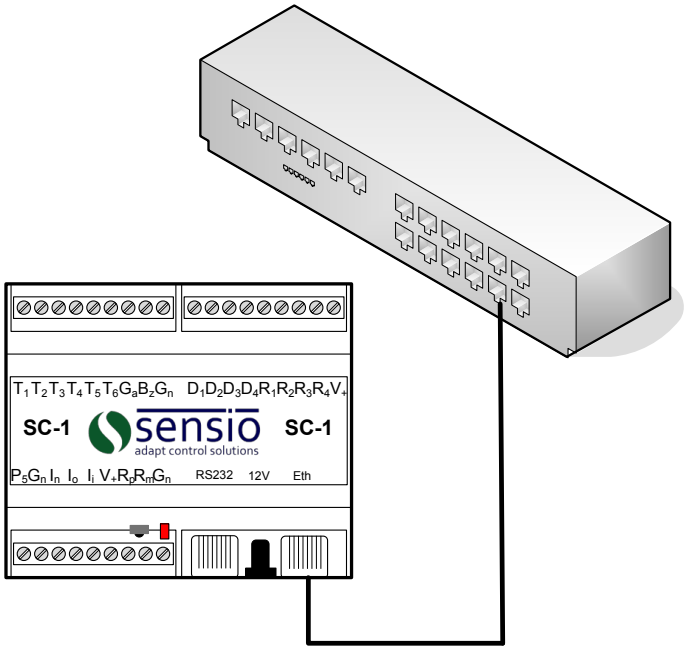
4 Power Supply

The power supply is connected to screw terminals C3 Pin 6 (+12V) and 9 (GND). The SC-1 itself will draw less than 150 mA from the power supply, but each relay coil driven by the SC-1 may add 20-200 mA to the total.



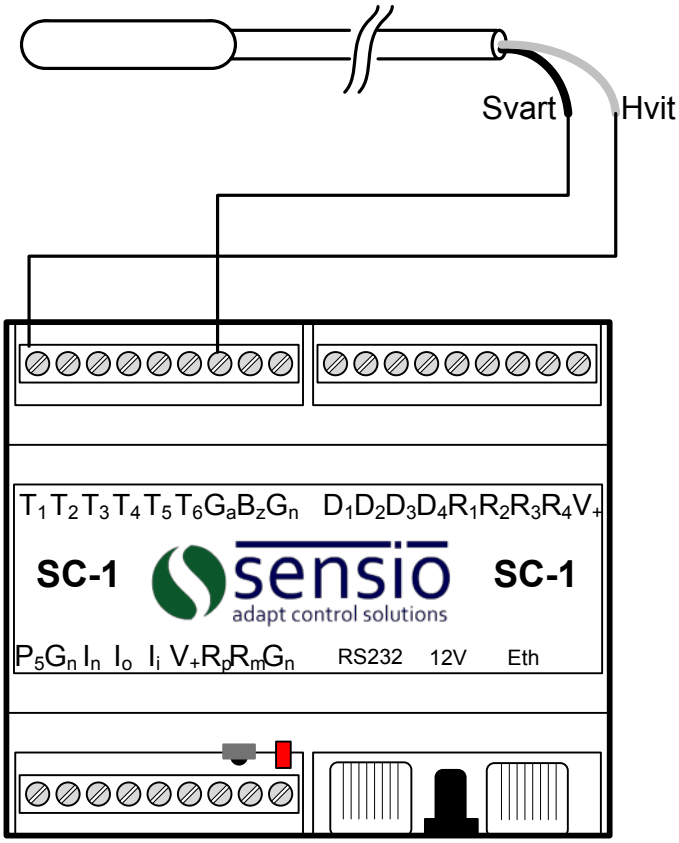
5 Network

The SC-1 is connected to a switch/router with a normal Ethernet patch-kabel.



6 Temperature probes

Temperature probes (Sensio type) are connected to SC-1 between terminals T1-T6 (C1 Pin 1-6) and analog ground (C1 Pin 7).

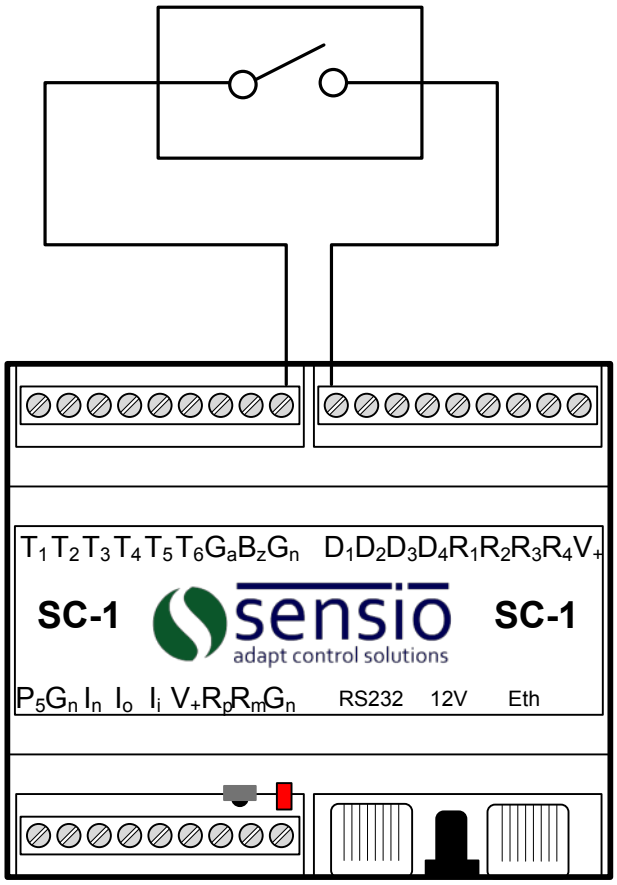


The Temperature probes are of type NTC with nominal value of 50 KOhm and Beta value of 3950. The probes are internally connected in a bridge with 47Kohm as the other leg. Different NTC values are possible, but should not be far away from the default values to maintain the accuracy.

The Telnet commands for changing the NTC configuration resistance and Beta is "**ntcr**" and "**ntck**", see FW manual.

7 Potential free contact inputs

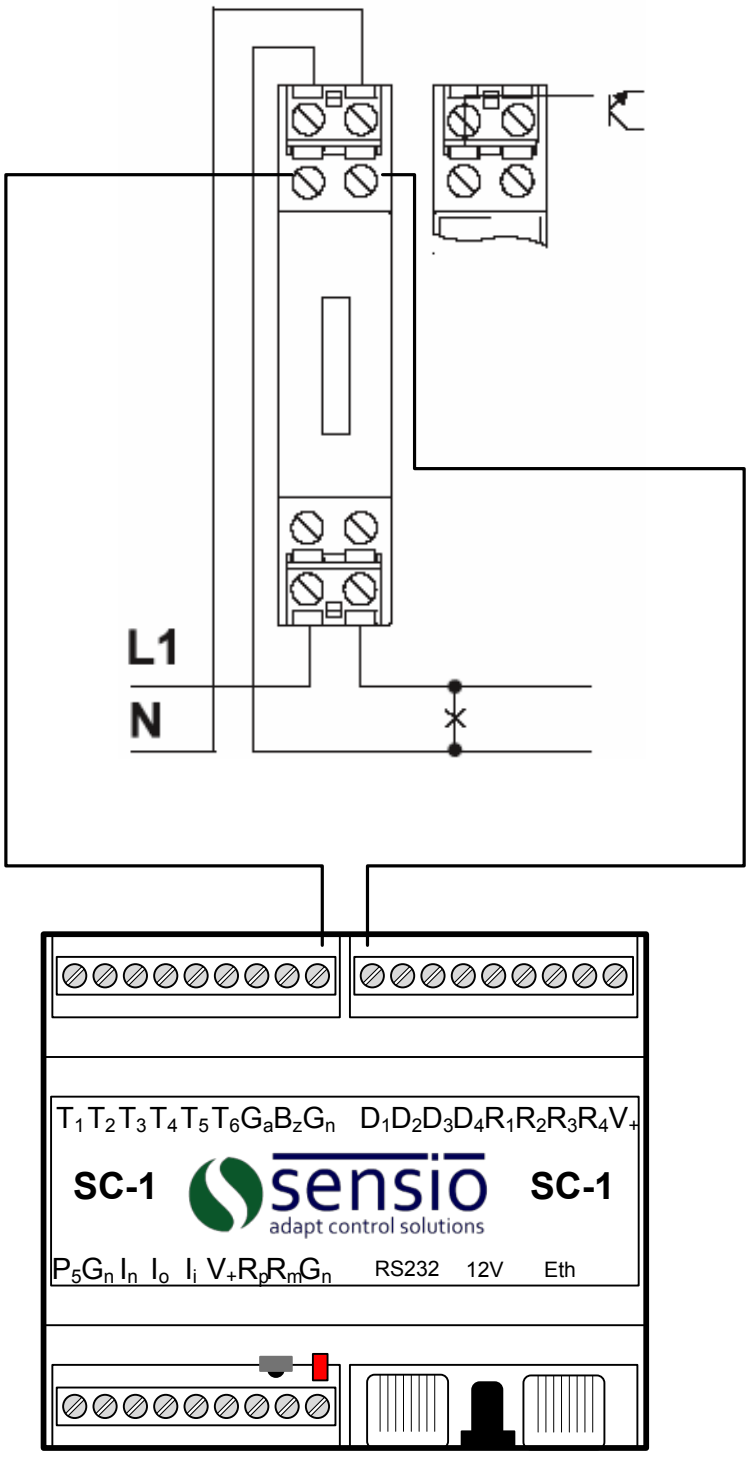
Potential free contacts are connected to the SC-1 between terminals D1-D4 (C2 Pin 1-4) and digital ground Gn (C1 Pin 9). The terminal are internally connected to +5V with a 10 KOhm resistor (0.5 mA contact current). The input terminals are voltage limited through a 10KOhm resistor (clamped to GND or +5Volt with zenerdiode). This means the input terminals may be connected to a voltage source, and the tripping point will be around 2 Volt.



7.1 Pulse power meters

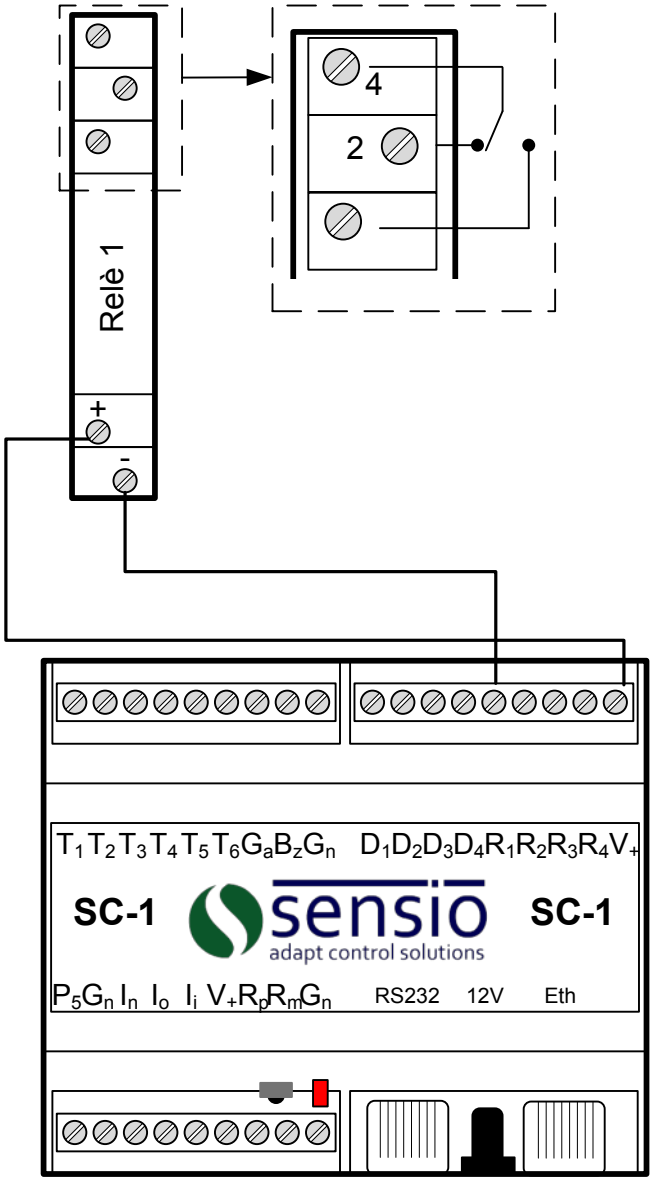
Power meters with pulse output (S0) are also connected to the D1-D4 terminals. The pulse outputs are normally opto isolator outputs, and the positive side (collector) is connected to D1-D4 and the negative side (emitter) is connected to ground.

Shown connection to type M1DC-23005-1:



8 Relay

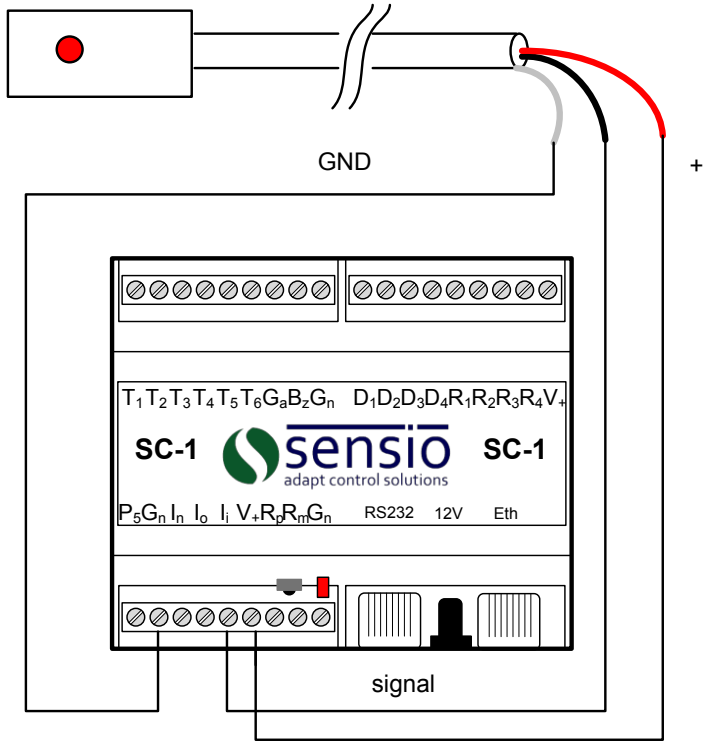
Relays are connected to the SC-1 between the terminals R1-R4 (C2 Pin 5-8) and +12Volt supply (C2 Pin 9). The R1-R4 terminals are open collector pull down transistor drivers with a 300 mA current limiter (PTC resistor).



9 Connecting IR sensors and emitter

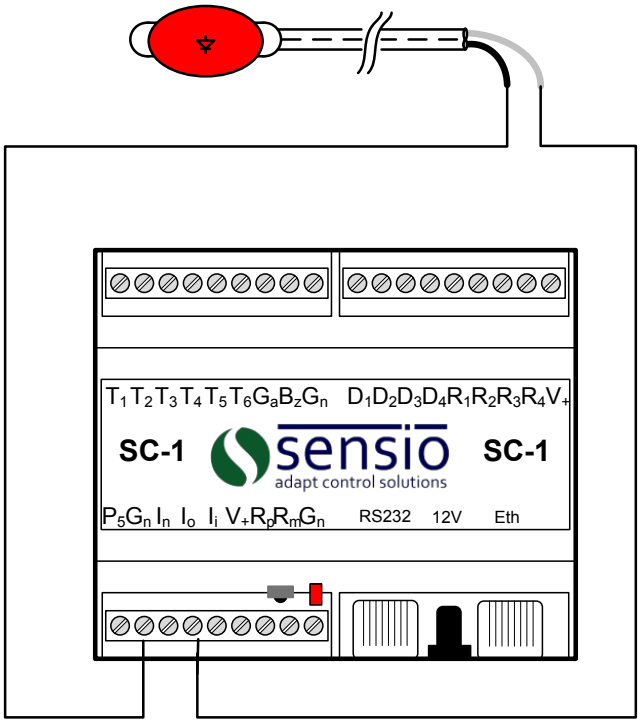
9.1 IR sensor, standard type with positive going pulse

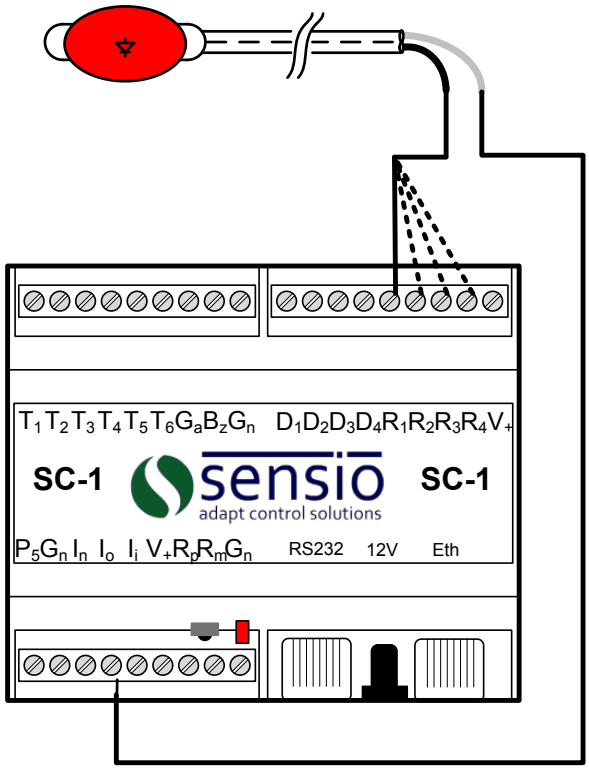
Connect to C3, Pin 2,5,6 with GND and +voltage wires as shown.



9.1.1 IR emitter

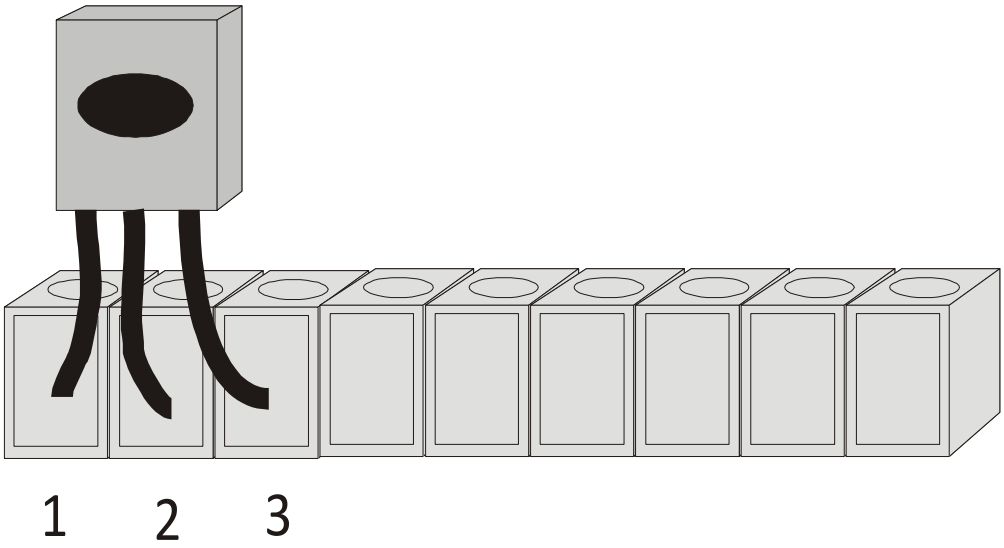
Connect to C3, Pin 2,4 with positive on Pin 4 and negative on GND (channel 0) or R1-4 (channel 1-4).





9.1.2 IR receiver Everlight IRM8601S

Connect to connector C3, Pin 1,2,3 as shown.



10 Commands and programming

The SC-1 is SW compatible with AHC3000. The only difference is in number of IO ports and physical configuration. See AHC3000 User Manual for description.

11 Specifications

- DIN rail, 6 modules
- 12VDC input voltage – 10V-15V (2 W)
- Ethernet interface
- 1 (4) IR transmitter driver (variable frequency)
- 4 relay coil open collector driver outputs (12 V relays), current limited
- 4 NO/NC switch inputs (pull up 3.3V)
- 6 channel temperature measurement input (NTC)
- Internal temperature sensor (channel 7)
- 2 serial communication channels RS232
- IR code receiver (optical)
- 2 IR code receiver inputs (wire-or'ed), one positive going pulse and one negative going pulse
- Internal battery backup for storage of state information during power loss
- Operating temperature range is 0-50 deg. Celsius.